Form EIA-1605EZ

Short Form for Voluntary Reporting of Greenhouse Gases

Reporting Form and Instructions

1999 Data

U.S. Department of Energy
Energy Information Administration, EI-81
Voluntary Reporting of Greenhouse Gases
1000 Independence Avenue, SW
Washington, DC 20585

February 2000

OMB No. 1905-0194
Expires: 05/31/01
Burden: 4 hours

Contents

OMB No. 1905-0194
Expires: 05/31/01
Burden: 4 hours

Introduction

What Is the Purpose of Form EIA-1605EZ?

Form EIA-1605EZ provides an easy means for the voluntary reporting of reductions in greenhouse gas emissions and increases in carbon sequestration under Section 1605(b) of the Energy Policy Act (EPAct) of 1992 (Public Law 102-486).

For additional background information on this reporting program, consult *Voluntary Reporting of Greenhouse Gases under Section 1605(b) of the Energy Policy Act of 1992: General Guidelines and Supporting Documents*, DOE/PO-0028 (hereafter referred to as the Guidelines and Supporting Documents). This publication also provides guidance and procedures for reporters who wish to estimate their emission reduction or carbon sequestration achievements.

Who Can Report Using Form EIA-1605EZ?

You can submit a report if you are an individual or organization that initiates, controls, or in some other way participates in an activity that reduces emissions of greenhouse gases or increases carbon sequestration. A reporter must also be a legal U.S. person, for example: a U.S. citizen or resident alien; a company, organization, or group incorporated under or recognized by U.S. law; or a Federal, state or local government agency.

Why Report?

This voluntary reporting program gives you the opportunity to record your emission reduction or carbon sequestration achievements. Your participation will demonstrate your support for achieving environmental policy goals through voluntary efforts. The information contained in Form EIA-1605 and Form EIA-1605EZ reports will contribute to an informed public debate on greenhouse gas mitigation efforts and promote information exchanges on the most effective methods to reduce greenhouse gas emissions and increase carbon sequestration.

Which Form Should You Use?

Form EIA-1605EZ is provided as an alternative to the long Form EIA-1605. You may use either form. Choose the form that best meets your objectives in participating in the Voluntary Reporting of Greenhouse Gases Program.

Use the short form if you wish to...

- provide a ***brief summary*** of your greenhouse gas reduction projects
- report ***only*** on specific projects reducing emissions or sequestering carbon in the United States in 1999

Use the long form if you wish to...

- create an in-depth public record of your emission reduction efforts that will be more useful for information exchange purposes
- report emissions, reductions, or sequestration for your entire organization
- report information for years prior to 1999
- include information on activities conducted outside the United States
- report a commitment to reduce future greenhouse gas emissions

How Will Your Report Be Used?

All reports submitted to the Energy Information Administration on Form EIA-1605EZ will be entered into an electronic database designed to preserve data on emission reduction and sequestration achievements. All information reported under this voluntary program, with the exception of confidential information, will be publicly available on a reporter-specific basis. Public access to these data will contribute to information exchanges, inform public policy development, and encourage public recognition of your efforts.

If there is information included in your report that, if released to the public, would cause substantial harm to your organization's competitive position, you may request that the information be kept confidential by checking the box on Schedule I, Question 5, of Form EIA-1605EZ indicating "This form contains confidential information." In addition, you may submit a letter accompanying your report that details, on an element-by-element basis, the information you deem confidential and the reasons why disclosure would be damaging to your organization's competitive position. A letter is not required at this time. However, at a later date, if someone requests your report, you may be asked to submit a letter.

The rulings, regulations, and procedures governing the Energy Information Administration's handling of requests for confidentiality can be found in *Can the Information You Report Be Kept Confidential?* (page 3).

What Are Greenhouse Gases?

Greenhouse gases absorb infrared energy and prevent it from leaving the atmosphere. Increasing levels of greenhouse gases in the atmosphere may contribute to an increase in average global temperatures resulting in adverse climate changes. Although many gases found in the atmosphere exhibit these properties, this reporting program focuses on the gases whose levels are most affected by human activity, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

What Are Emissions, Reductions, and Sequestration?

Emissions are releases of greenhouse gases into the atmosphere that are caused by human activity. A reduction is a decrease in greenhouse gas emissions. Sequestration is the capture of carbon dioxide in a solid material, including trees, other vegetation, and soils.

What Can You Report?

You can submit a report on one or more activities or projects that reduced greenhouse gas emissions or increased sequestration during 1999. Your report should cover only the following greenhouse gases:

- Carbon Dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Halogenated Substances (see Appendix A, page 11)
- Other radiatively enhancing gases (Carbon Monoxide [CO], Nitrogen Oxides [NO_x] and Nonmethane Volatile Organic Compounds [NMVOCs])

Can You Report Foreign Activities on Form EIA-1605EZ?

No. If you wish to report on activities that occurred outside of the United States, its territories and trusts, you must use the long Form EIA-1605.

How Should You Calculate Emission Reductions and Sequestration?

Procedures for calculating emission reductions and sequestration are presented and discussed in the Guidelines and Supporting Documents. The Guidelines provide general information that is relevant to all emission reduction and sequestration projects, whereas the Supporting Documents provide some assistance for calculating reductions and sequestration for specific types of projects. You should carefully review the General Guidelines and Supporting Documents if you intend to report emission reduction and sequestration data. However, you are free to calculate the data you report using any reasonable alternative method. In addition, the Voluntary Reporting of Greenhouse Gases Program has developed a limited number of worksheets for calculating emission reductions and sequestration. To see if a suitable worksheet is available for your project, contact the program at the telephone numbers or addresses listed on the following page.

Can the Information You Report Be Kept Confidential?

The Energy Information Administration is governed by the following rulings, regulations, and procedures when handling requests for confidentiality:

The Office of Legal Counsel of the Department of Justice concluded on March 20, 1991, that the Federal Energy Administration Act requires the Energy Information Administration to provide company-specific data to the Department of Justice, or to any other Federal agency when requested for official use, which may include enforcement of Federal law. The information contained on this form may also be made available, upon request, to another component of the Department of Energy (DOE), to any Committee of Congress, the General Accounting Office, or other Congressional agencies authorized by law to receive such information. A court of competent jurisdiction may obtain this information in response to an order.

The information contained on this form will be kept confidential and not disclosed to the public to the extent that it satisfies the criteria for exemption under the Freedom of Information Act (FOIA), 5 USC §552; the DOE regulations, 10 CFR §1004.11, implementing the FOIA; and the Trade Secrets Act, 18 USC §1905.

Upon receipt of a request for this information under FOIA, the DOE shall make a final determination whether the information is exempt from disclosure in accordance with the procedures and criteria provided in the regulations. To assist us in this determination, reporters should demonstrate to the DOE that, for example, their information contains trade secrets or commercial or financial information whose release would be likely to cause substantial harm to their company's competitive position. A letter accompanying the submission that explains (on an element-by-element basis) the reasons why the information would be likely to cause the respondent substantial competitive harm if released to the public would aid in this determination.

How Is this Reporting Package Organized?

This reporting package contains:

1. Introduction
2. Form EIA-1605EZ
3. Instructions for Completing Form EIA-1605EZ
4. Appendices

Can You Report Electronically?

Yes. EIA has developed a personal computer version of Form EIA-1605EZ that is an easy-to-

use Windows™ application. You may file your completed form on diskette, or by E-mail. The electronic form is available on CD-ROM and diskettes or can be downloaded from the Voluntary Reporting of Greenhouse Gases web-site on the Internet. To obtain a copy of the electronic form, call **1-800-803-5182** or see EIA's greenhouse gases World Wide Web site at **http://www.eia.doe.gov/oiaf/1605/frntend.html.**

How Do You Proceed from Here?

1. Familiarize yourself with Form EIA-1605EZ, the instructions, and the Guidelines and Supporting Documents.
2. Define the scope of your report by deciding which projects to include.
3. Estimate the emission reductions or sequestration for your projects (optional).
4. Complete Form EIA-1605EZ.
5. Submit your report on paper to EIA. Paper reports can be submitted by mail or facsimile. Electronic reports can be submitted on diskette or by e-mail. Use the following addresses or facsimile number:

   Mail:
   Voluntary Reporting of Greenhouse Gases
   Energy Information Administration, EI-81
   U.S. Department of Energy
   1000 Independence Avenue, SW
   Washington, DC 20585

   Facsimile: (202) 586-3045

   E-mail: infoghg@eia.doe.gov

Is There a Deadline for Submitting Reports?

The next edition of the voluntary reporting program database will include all reports received prior to **June 1, 2000**. Reports received after this date will be included in the following annual update of the database.

Do You Have Any Suggestions?

If you have suggestions for improving the instructions or format of Form EIA-1605EZ, please submit them with your completed form on an attached sheet.

Do You Have Any Questions?

To help you in preparing your report, the Voluntary Reporting of Greenhouse Gases Program has established a toll-free assistance line. For answers to questions about the forms and instructions or for assistance in quantifying your emission reductions, call:

1-800-803-5182

or submit your questions via e-mail to:

infoghg@eia.doe.gov

Questions can also be submitted by mail or fax using the address and facsimile number listed above. Further information on the program is also available via the Internet at the Energy Information Administration's greenhouse gases site on the World Wide Web:

http://www.eia.doe.gov/oiaf/1605/frntend.html

Form EIA-1605EZ
Voluntary Reporting of Greenhouse Gases

Form Approved
OMB No. 1905–0194
Expiration Date: 05/31/01

www.eia.doe.gov

Energy Information Administration
U.S. DEPARTMENT OF ENERGY

This report is voluntary and authorized by the Energy Policy Act of 1992 (Public Law 102–486). For the provisions concerning confidentiality of information submitted on this form, see *Can The Information You Report Be Kept Confidential?* on page 3 of the instructions. Public reporting burden for this collection of information is estimated to be 4 hours per response, including the time of reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the form. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing burden, to the Energy Information Administration, Statistics and Methods Group, EI-70, 1000 Independence Avenue, S.W., Washington, DC 20585; or to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

Send completed forms to:

Voluntary Reporting of Greenhouse Gases Program
Energy Information Administration, EI-81
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

For more information or technical assistance, call:
1-800-803-5182

Schedule I. Reporter Information and Certification

1. NAME OF INDIVIDUAL OR ORGANIZATION REPORTING:

_____

_____

2. ADDRESS

Street: _____

City: _____

State: __ __ ZIP: __ __ __ __ __–__ __ __ __

3. TYPE OF REPORTER

☐ Individual
☐ Company
☐ Government
☐ Non-Profit Organization
☐ Other, specify: _____

Two-digit Standard Industrial Classification (SIC) Code *(see Appendix B)*: __ __

4. CONTACT NAME: _____

_____

Title: _____

Tel: (_____) _____ – _____

Fax: (_____) _____ – _____

E-mail: _____

5. CONFIDENTIALITY

Check box if applicable *(see the Instructions for more information)*:

☐ This report contains confidential information.

6. CERTIFICATION

Name of Certifier: _____

Title: _____

Tel: (_____) _____ – _____

I certify that the information reported on this form is accurate to the best of my knowledge and belief.

Signature: _____

Date: ___ / ___ / ___

EIA Use Only:

Schedule II. Project Information and Greenhouse Gas Emission Reductions for 1999

Project Description (A)	Code for Project Type (B)	Code for Voluntary Program (if applicable) (C)	Project Size			Total Energy or Fuel Saved (if applicable)			Emission Reduction or Sequestration			Was the Project Reported Last Year (Yes or No)? (M)
			Size Measure (D)	Quantity (E)	Unit of Measure (F)	Type of Energy or Fuel (G)	Quantity (H)	Unit of Measure (I)	Green-house Gas (J)	Quantity (K)	Unit of Measure (L)	
Examples												
Lighting Replacement	*321*	*GLP*	*Bulbs*	*20*	*Number*	*EL*	*2,059*	*kWh*	*CO2*	*1.75*	*st*	*N*
Carpooling	*431*	*N/A*	*Passengers*	*4*	*Number*	*MG*	*183*	*gal*	*CO2*	*3,587*	*lbs*	*Y*
Projects												
1.												
2.												
3.												
4.												
5.												
6.												

Supplementary Information *attach additional sheets if necessary*

Instructions for Completing Form EIA-1605EZ

Complete both schedules of Form EIA-1605EZ. Schedule I records reporter identification information. Schedule II accommodates information regarding your emission reduction and sequestration activities during the current reporting are required to certify the accuracy of the information you report with your signature if you are reporting as an individual, or the signature of a person authorized to act on your organization's behalf.

Schedule I. Reporter Information and Certification

Use the following step-by-step instructions to complete Schedule I of Form EIA-1605EZ.

1. Name: Record your name (if you are reporting as an individual or head of household) or the name of your organization.

2. Address: Record your address or the address of your organization.

3. Type of Reporter: Check the box that best describes you or your organization. If you check "Other," specify reporter type. Identify the two-digit Standard Industrial Classification (SIC) code that best describes you or your organization's primary activities. See Appendix B (page 13) for a list of the codes.
Note: Use SIC code 88 (private households) if you are reporting as an individual or head of household.

4. Contact: Record the name, title, and telephone number of the person who can be contacted to answer questions regarding the content of the submitted form.

5. Confidentiality: Check the box "This report contains confidential information" to request that the information submitted in this report be kept confidential. In addition, you may submit a letter accompanying your report that details, on an element-by-element basis, the information you deem confidential and the reasons why disclosure would be damaging to you or your organization. For further information on confidentiality, see *How Will Your Report Be Used?* (page 2) and *Can the Information You Report Be Kept Confidential?* (page 3).

6. Certification: Record the name and title of the person certifying that the information contained in the report is accurate. If you are reporting as an individual, you must certify that the information contained in the report is accurate by signing and dating Schedule I. If the reporter is an organization rather than an individual, a person authorized to act on the organization's behalf must sign Schedule I.

Schedule II. Project Information and Greenhouse Gas Emission Reductions

Use the following step-by-step instructions and the information provided in the appendices to complete Schedule II of Form EIA-1605EZ. Also, see the illustrative examples provided at the end of the instructions for additional guidance (pages 9 and 10). If you wish to report on more than six projects, attach additional photocopies of Form EIA-1605EZ.

Provide the following information for each of your projects:

A. Project: Provide a brief description of the project or activity. For example, if you joined a carpool enter "carpooling."

B. Code for Project Type: Using the list of project type codes in Appendix C (page 14),

provide the three-digit code for the project type. For example, code 431 should be used to identify a carpooling project. If you cannot find your specific project on the project type list, or if you are aggregating a number of different types of projects into a single project for reporting purposes, use one of the "general" project codes. For example, if you used a combination of mass transit and carpooling for your daily commute and you do not wish to report these as two separate projects, use code 400, "General Transportation Projects," to identify the project type.

C. Code for Voluntary Program: A number of voluntary programs have been initiated to encourage individuals and organizations to save energy or reduce greenhouse gas emissions. For example, the U.S. Environmental Protection Agency (EPA) administers the Green Lights program, which provides incentives for the use of more efficient light bulbs. If you or your organization undertook the project as part of your participation in one or more voluntary program(s), provide the alphabetic code that identifies the principal program in the space provided. Voluntary programs and their corresponding codes are listed in Appendix D (page 19). If the principal voluntary program associated with your project is not listed in Appendix D, enter the code OTH for "Other." Provide the name and sponsoring agency for this program on a separate sheet. Record "NA" if not applicable.

Project Size

Note: You may leave Columns (D), (E), and (F) blank if you do not have the requested information, or if the request does not apply to your project.

D. Size Measure: Enter the measure used to characterize the size of your project. Where possible, use the size measure listed for each project type in Appendix C (page 14). For example, for a carpooling project, where the recommended size measure is the number of passengers, you would enter "passengers."

E. Quantity: Quantify the size of your project. For example, if you are reporting on a carpooling project involving four passengers, write the number "4" in Column (E).

F. Unit of Measure: If applicable, indicate the unit of measure for the value reported in Column (E). Use the standard abbreviations for units of measure found in Appendix E (page 20). For example, if you are reporting on an insulation project in which 1,000 square feet of new insulation was installed, report "1,000" in Column (E) and "sq ft" (the standard abbreviation for square feet) in Column (F). Enter “number” in Column (F) if you characterized project size by the number of some item involved, e.g., the number of appliances replaced or the number of trees planted.

Total Energy or Fuel Saved

Note: You may leave Columns (G), (H) and (I) blank if you do not have the requested information or if the request does not apply to your project.

G. Type of Energy or Fuel: Indicate the type of energy or fuel saved as a result of your project. Use the fuel type codes in Appendix F (page 23). For example, if you are reporting on a carpooling project, you would probably report "MG" (motor gasoline) as the type of fuel saved. Alternatively, if you are reporting an insulation project for a home with electric space heating, you would report "EL" (electricity) as the type of energy saved.

H. Quantity: Report your estimate of the total quantity of fuel or energy saved in 1999 as a result of the project. For example, if you saved an estimated 1,000 gallons of gasoline as

a result of a carpooling project in 1999, report "1,000" in Column (H).

I. Unit of Measure: Indicate the units for the value reported in Column (H). Use the standard abbreviations for units found in Appendix E (page 20). For example, if you are reporting on the carpooling project referenced above, report "1,000" in Column (H) and "gal" (the standard abbreviation for gallons) in Column (I).

Emission Reductions or Carbon Sequestration

Note: Use Columns (J), (K), and (L) to report your estimate of the emission reduction or carbon sequestration achieved in 1999. If you did not calculate your emission reduction or carbon sequestration, leave these columns blank.

Emission coefficients for common fuels are included in Appendix F (page 23). If your project reduced fuel consumption, you can easily estimate your carbon dioxide emissions reduction by multiplying the fuel savings reported in Column H by the appropriate emissions coefficient from Appendix F (page 23). For example, in the above referenced carpooling project, you would multiply the quantity of gasoline saved (1,000 gallons) by the emissions coefficient for motor gasoline (19.6 pounds CO_2 per gallon). The result (19,600 lbs CO_2) represents the carbon dioxide emission reduction achieved by the project.

J. Greenhouse Gas: Indicate the chemical formula or code of the greenhouse gas for which you are providing an emission reduction or sequestration estimate. Use the following codes based on the chemical formulas for the principal greenhouse gases: CO2 for carbon dioxide, N2O for nitrous oxide, and CH4 for methane. For halogenated substances and other radiatively enhancing gases, use the codes listed in Appendix A (page 11).

K. Quantity: Provide your estimate of the emission reduction or carbon sequestration achieved in 1999 as a result of the project. For example, if you estimate that a project resulted in a 20-short ton reduction in carbon dioxide emissions in 1999, report "20" in Column (K).

L. Unit of Measure: Indicate the units for the value reported in Column (K). Use the standard abbreviations for units found in Appendix E (page 20). In the example above, you would report "st" (the standard abbreviation for short tons) in Column (L).

Previous Reporting

M. Was This Project Reported Last Year? Indicate "yes" if the project was included in last year's Form EIA-1605EZ report. If you did not file a report last year, or if the project was not included in last year's Form EIA-1605EZ report, indicate "no."

Schedule II - Examples

The following examples illustrate how to complete Form EIA-1605EZ for two different projects: a lighting replacement project and a carpooling project. The first two rows of the table in Schedule II illustrate how the form was completed for these example projects.

Example 1. Lighting Replacement: You replaced 60-watt incandescent bulbs with 13-watt compact fluorescent bulbs in 20 fixtures in your house in Kansas at the beginning of 1999. You estimate that the lights were turned on an average of 6 hours a day both before and after the light bulb replacement. Volume I of the Supporting Documents provides the following formula for computing annual energy savings for projects involving a constant load with fixed hours:

Energy Savings = $H \times (P_{ref}-P_{act})$

where

H = annual hours of operation = (6 hours per day) × (365 days per year) = 2,190 hours

P_{ref} = power requirement before the project = 20 lights × 60 watts per light = 1,200 watts

P_{act} = power requirement after the project = 20 lights × 13 watts per light = 260 watts

Energy savings = 2,190 × (1,200-260) = 2,058,600 watthours

The above energy savings can be converted from watthours to kilowatthours (kWh) by dividing by 1,000; the result is 2,059 kWh. From Appendix G (page 25), the electricity emission factor for Kansas (combined utility and nonutility generating sources) is 1.703 pounds per kWh. Therefore, the emission reduction (ER) for the project is estimated as follows:

ER = (2,059 kWh) × (1.703 lbs per kWh) = 3,506 pounds CO_2

If desired, the quantity of CO_2 reported can be converted to short tons by dividing by 2,000, giving 1.75 short tons.

The first example on the EZ form illustrates how the information for this project should be recorded.

Example 2. Carpooling: You began carpooling with three co-workers instead of driving the 30-mile round-trip to work alone. You drive for the carpool every fourth week. During that week, your daily round-trip distance increases to 35 miles because of the additional distance you now travel to pick up your co-workers from, and drop them off at, their homes. Your car gets 27 miles per gallon of gasoline. You intend to report a reduction in emissions from your car resulting from the fewer miles you are now driving.

The fuel saved is the difference between your previous fuel consumption (when driving alone every day) and your current fuel consumption (when driving the carpool every fourth week). You estimate that you previously commuted alone 240 days per year and that you drove for the carpool 65 days last year. You can calculate your reduction in CO_2 emissions from your fuel saved using the emission coefficient for motor gasoline in Appendix F (page 23). Thus, you would complete the following calculations:

Previous fuel consumption = (240 days × 30 miles/day) ÷ 27 miles/gallon = 267 gallons

Current fuel consumption = (65 days × 35 miles/day) ÷ 27 miles/gallon = 84 gallons

Fuel savings = 267 gallons - 84 gallons = 183 gallons

CO_2 emission reduction = 183 gallons × 19.6 pounds of CO_2/gallon = 3,587 pounds of CO_2

The second example on the form illustrates how the information for this project should be recorded.

Additional Project Information

At your option, you may provide additional information on your project(s) and/or estimation methods in the Supplementary Information section under Schedule II, or by attaching a sheet to your Form EIA-1605EZ. For example, you may provide more detailed information describing your project (e.g. a list of the tree species planted for urban forestry projects), or you may explain the data sources, coefficients and algorithms used to derive your emission reductions estimates.

Appendix A. Codes for Greenhouse Gases

Code	Name	Formula	Principal Uses
CO2	Carbon Dioxide	CO_2	
CH4	Methane	CH_4	
CAR	Carbon	C	
N2O	Nitrous Oxide	N_2O	
24	Carbon tetrachloride	CCl_4	CFC feedstock, solvents
01	CFC-11 (trichlorofluoromethane)	$CFCl_3$	Blowing agents, chillers
02	CFC-12 (dichlorodifluoromethane)	CF_2Cl_2	Auto air conditioners, chillers, blowing agent
03	CFC-113 (Freon 113)	$C_2F_3Cl_3$	Solvent
04	CFC-114	$C_2F_4Cl_2$	Solvent
05	CFC-115	C_2F_5Cl	Solvent, refrigerant
27	Chloroform	$CHCl_3$	HCFC feedstock
32	FIC (fluoroiodocarbon)		
06	HBFC-22B1 (hydrobromofluorocarbon)		
07	HCFC-22 (chlorodifluoromethane)	CF_2HCl	Residential air conditioners
08	HCFC-123	CF_3CCl_2H	CFC replacement, foam blowing
09	HCFC-124	C_2HF_4Cl	CFC replacement
10	HCFC-141b	$C_2FH_2Cl_3$	CFC replacement
11	HCFC-142b (chlorodifluoroethane)	CH_3CClF_2	CFC replacement
12	Halon-1211	$CClF_2Br$	Fire extinguisher
13	Halon-1301	CF_3Br	Fire extinguisher
14	Halon-2402		
15	HFC-23	CHF_3	CFC byproduct
16	HFC-32 (hydrofluorocarbon)	CH_2F_2	
17	HFC-125 (hydrofluorocarbon)	C_2HF_5	
18	HFC-134a	CH_2FCF_3	CFC replacement
19	HFC-152a	$C_2H_4F_2$	CFC replacement
20	HFC-227EA	C_3HF_7	
41	HFC-236fa	$C_3H_2F_6$	
21	HFC-245CA	$C_3H_3F_5$	
29	Methyl bromide	CH_3Br	
25	Methyl chloroform	$C_2Cl_3H_3$	Solvent
26	Methylene chloride	CH_2Cl_2	Solvent
22	Perfluoromethane	CF_4	Byproduct, etchant, cleaning agent
23	Perfluoroethane	C_2F_6	Byproduct, etchant, cleaning agent
30	FC 3-1-10 (perfluorocarbon)	C_4F_{10}	

Code	Name	Formula	Principal Uses
31	FC5-1-14 (perfluorocarbon)	C_6F_{14}	
42	Perfluoropropane	C_3F_8	
28	Sulfur hexafluoride	SF_6	Electrical insulator
CO	Carbon Monoxide	CO	
NOx	Nitrogen Oxides	NO_x	
NVOC	Nonmethane Volatile Organic Compounds		
99	Other		

Appendix B. Standard Industrial Classification (SIC) Codes

Agriculture, Forestry, and Fishing
01 Agricultural Production - Crops
02 Agricultural Production - Livestock
07 Agricultural Services
08 Forestry
09 Fishing, Hunting, and Trapping

Mining
10 Metal Mining
12 Coal Mining
14 Nonmetallic Minerals, except fuels

Construction
15 General Building Contractors
16 Heavy Construction except building
17 Special Trade Contractors

Manufacturing
20 Food and Kindred Products
21 Tobacco Products
22 Textile Mill Products
23 Apparel and Other Textile Products
24 Lumber and Wood Products
25 Furniture and Fixtures
26 Paper and Allied Products
27 Printing and Publishing
28 Chemicals and Allied Products
29 Petroleum Refining and Other Related Industries
30 Rubber and Miscellaneous Plastic Products
32 Stone, Clay, Glass, and Concrete Products
33 Primary Metals Industries
34 Fabricated Metal Products except machinery and transportation equipment
35 Industrial and Commercial Equipment and Components
36 Electronic and Other Electrical Equipment
37 Transportation Equipment
38 Instruments and Related Products
39 Miscellaneous Manufacturing Industries

Transportation and Public Utilities
40 Railroad Transportation
41 Local and Interurban Passenger Transit
42 Trucking and Warehousing
43 U.S. Postal Service
44 Water Transportation
45 Transportation by Air
46 Pipelines except natural gas
47 Transportation Services
48 Communications
49 Electric, Gas, and Sanitary Services

Wholesale Trade
50 Wholesale Trade - Durable Goods
51 Wholesale Trade - Nondurable Goods

Retail Trade
52 Building Materials and Garden Supplies
53 General Merchandise Stores
54 Food Stores
55 Automotive Dealers and Service Stations
56 Apparel and Accessory Stores
57 Furniture and Home furnishings Stores
58 Eating and Drinking Places
59 Miscellaneous Retail

Finance, Insurance, and Real Estate
60 Depository Institutions
61 Nondepository Institutions
62 Security and Commodity Brokers
63 Insurance Carriers
64 Insurance Agents, Brokers, and Service
65 Real Estate
67 Holding and Other Investment Offices

Services
70 Hotels and Other Lodging Places
72 Personal Services
73 Business Services
75 Auto Repair, Services, and Parking
76 Miscellaneous Repair Services
78 Motion Pictures
79 Amusement and Recreation Services
80 Health Services
81 Legal Services
82 Educational Services
83 Social Services
84 Museums, Botanical, Zoological Gardens
86 Membership Organizations
87 Engineering and Management Services
88 Private Households
89 Services, not elsewhere classified

Public Administration
91 Executive, Legislative, and General
92 Justice, Public Order, and Safety
93 Finance, Taxation, and Monetary Policy
94 Administration of Human Resources
95 Environmental Quality and Housing
96 Administration of Economic Programs
97 National Security and International Affairs

99 Nonclassifiable Establishments

Appendix C. Project Type Codes and Size Measures

PROJECT TYPE	CODE	PROJECT SIZE	
		SIZE MEASURE	UNIT OF MEASURE (STANDARD ABBREVIATION*)
ELECTRICITY GENERATION, TRANSMISSION AND DISTRIBUTION			
General generation, transmission & distribution projects	100		
General generator improvements	110	Total capacity affected	megawatts (MW)
Heat rate improvement	111	Total capacity affected	megawatts (MW)
Availability improvement	112	Total capacity affected	megawatts (MW)
Fuel switching	113	Total capacity affected	megawatts (MW)
Increase in low-emitting capacity	114	Total capacity affected	megawatts (MW)
Decrease in high-emitting capacity	115	Total capacity affected	megawatts (MW)
Dispatching changes only	120	Total capacity affected	megawatts (MW)
Zero/low emitting power purchases	121	Total capacity affected	megawatts (MW)
General transmission and distribution	130	Length of system affected	miles (mi)
High-efficiency transformers	131	Number of transformers installed	
Reconductoring	132	Length of system affected	miles (mi)
Distribution voltage upgrade	133	Length of system affected	miles (mi)
Other transmission & distribution improvements	139	Length of system affected	miles (mi)
Other electricity generation, transmission, and distribution projects/activities	199		
COGENERATION AND WASTE HEAT RECOVERY			
Cogeneration and waste heat recovery	200	Capacity	megawatts (MW) or million Btu per hour (MMBtu/hr)
ENERGY EFFICIENCY			
General energy use	300		
Equipment and appliances improvement or replacement	310	Number of units	
Lighting and lighting control	320	Number of units (if applicable)	
Load control	330	Number of customers participating or devices controlled	
Heating, ventilation, and air conditioning	340	Number of units	
Building shell improvement	350		
Motor and motor drive	360	Number of motors or motor systems	
Fuel switching	370	Quantity of new fuel consumed	
Industrial power systems	380	Capacity of system	million Btus or megawatts
Urban forestry (energy effects only)	390	Number of trees	
Other energy end-use projects/activities	399	Number of devices	

PROJECT TYPE	CODE	PROJECT SIZE	
		SIZE MEASURE	UNIT OF MEASURE (STANDARD ABBREVIATION*)
TRANSPORTATION AND OFF-ROAD VEHICLES			
General transportation projects	400		
Marketing/manufacturing of more efficient vehicles	411	Number of vehicles affected	
Marketing/manufacturing of more efficient vehicle components	412	Number of vehicles affected	
Marketing/manufacturing of alternative fuel vehicles	413	Number of vehicles affected	
Operation of more efficient vehicles	421	Number of vehicles affected	
Use of more efficient vehicle components (e.g., tires)	422	Number of vehicles affected	
Operation of alternative fuel vehicles	423	Number of vehicles affected	
General trip reduction (Demand modification)	430	Vehicle-miles eliminated per year	miles (mi)
Demand Modification: Carpooling/vanpooling	431	Number of passengers	
Demand Modification: Mass transit	432	Passenger-miles travelled per day	passenger-miles per day (PM/d)
Demand Modification: Employee parking buyout	433	Vehicle-miles eliminated per year	miles (mi)
Demand Modification: Telecommuting	434	Vehicle-miles eliminated per year	miles (mi)
Demand Modification: Other	439	Vehicle-miles eliminated per year	miles (mi)
Service efficiency improvements	440	Vehicle-miles eliminated per year	miles (mi)
Driver/operator training	450	Number of drivers or operators	
Infrastructure improvement	460	Number of vehicles affected	
Accelerated scrappage	470	Number of vehicles affected	
Other transportation and off-road vehicle projects/activities	499		
WASTE TREATMENT AND DISPOSAL — METHANE			
General Waste Treatment and Disposal: Methane emissions avoidance or recovery	500		
Landfills: General methane emissions avoidance or recovery	510	Volume methane emissions avoided or recaptured	million standard cubic feet (MMscf)
Landfills: Landfill gas recovery for energy use	511	Area of landfill affected	acres (a)
Landfills: Flaring landfill gas	512	Volume of gas flared	million standard cubic feet (MMscf)
Landfills: Modification of waste stream (e.g., yard waste bans)	513	Tons of waste avoided	short tons (st)
Landfills: Other	514	Volume methane emissions avoided or recaptured annually	million standard cubic feet (MMscf)
Wastewater Treatment: General methane emissions avoidance or recovery	520	Volume methane avoided or recaptured	thousand standard cubic feet (Mscf)

PROJECT TYPE	CODE	PROJECT SIZE	
		SIZE MEASURE	UNIT OF MEASURE (STANDARD ABBREVIATION*)
Wastewater Treatment: Biogas recovery for energy use	521	Daily wastewater load	million gallons per day (MMgal/d)
Wastewater Treatment: Flaring of biogas	522	Volume of gas flared	thousand standard cubic feet (Mscf)
Wastewater Treatment: Modification of waste stream (e.g. elimination of pulp and paper wastes)	523	Volume of waste avoided	million gallons per day (MMgal/d)
Wastewater Treatment: Altered waste treatment (may be mechanical or chemical)	524	Volume of wastewater affected	million gallons per day (MMgal/d)
Wastewater Treatment: Other	525	Volume methane emissions avoided or recaptured	thousand standard cubic feet (Mscf)
Other waste treatment and disposal activities reducing emissions of methane	599	Volume methane emissions avoided or recaptured	thousand standard cubic feet (Mscf)
AGRICULTURE — METHANE AND NITROUS OXIDE			
General Agriculture: Methane and nitrous oxide emissions avoidance or recovery	600		
General Livestock: General methane emissions avoidance or recovery	610	Volume methane avoided or recaptured	thousand standard cubic feet (Mscf)
Livestock: Reduced livestock production	611	Volume methane avoided	thousand standard cubic feet (Mscf)
Livestock: Improved livestock productivity	612	Number of animals affected	
Livestock: Recovery of biogas from manure for energy use	613	Number of animals contributing manure	
Livestock: Recovery and flaring of biogas from manure	614	Volume of gas recovered	thousand standard cubic feet (Mscf)
Cropland: Rice field drainage	621	Area affected	acres (a)
Cropland: Improved nutrients management	622	Area affected	acres (a)
Other agricultural projects reducing emissions of methane or nitrous oxide	699		
OIL AND NATURAL GAS SYSTEMS AND COAL MINING — METHANE			
General oil and natural gas systems and coal mining	700		
Oil and Natural Gas Systems: General methane emissions avoidance or recovery	710		
Oil and Natural Gas Systems: Reduction in gas vented due to increased flaring	711	Number of wells affected	
Oil and Natural Gas Systems: Reduction in natural gas vented due to recovery for energy	712	Volume of gas recovered	million standard cubic feet (MMscf)
Oil and Natural Gas Systems: Change in operation and maintenance practices	713	Miles of pipeline affected, Number of wells, Number of devices, or Number of stations	miles (mi)
Oil and Natural Gas Systems: Equipment replacement and upgrade	714	Number of devices	

PROJECT TYPE	CODE	PROJECT SIZE	
		SIZE MEASURE	UNIT OF MEASURE (STANDARD ABBREVIATION*)
Oil and Natural Gas Systems: Natural gas reinjection	715	Number of wells	
Oil and Natural Gas Systems: Reduced production	716	Volume decrease	million standard cubic feet (MMscf)
Oil and Natural Gas Systems: Recovery of glycol dehydrators emissions	717	Number of dehydrators affected	
Oil and Natural Gas Systems: Other methane emissions avoidance or recovery	719	Volume of emissions avoided or recovered	million standard cubic feet (MMscf)
Coal Mining: General methane emissions avoidance or recovery	720		
Coal Mining: Decreased Production	721	Decrease in coal production	(thousand short tons)
Coal Mining: Change in operation and maintenance procedures	722	Coal production in mine	(thousand short tons)
Coal Mining: Equipment replacement and upgrade	723	Number of devices	
Coal Mining: Pre-mining degasification	724		
Coal Mining: Gas recovery using in-mine horizontal boreholes	725	Volume of gas recovered	million standard cubic feet (MMscf)
Coal Mining: Gas recovery using gob wells	726	Volume of gas recovered	million standard cubic feet (MMscf)
Coal Mining: Recovery of mine ventilation air	727	Volume of gas recovered	million standard cubic feet (MMscf)
Coal Mining: Other methane emissions avoidance or recovery	729	Volume of emissions avoided or recaptured	million standard cubic feet (MMscf)
Other projects reducing methane emissions from oil and natural gas systems and coal mining	799		
CARBON SEQUESTRATION			
General carbon sequestration projects	800		
General tree planting	810	Number of trees planted	
Afforestation	811	Area affected	acres (a)
Reforestation	812	Area affected	acres (a)
Urban forestry (sequestration only)	813	Number of trees planted	
Forest preservation	821	Area preserved	acres (a)
Modified forest management	822	Area affected	acres (a)
Woody biomass production and other agroforestry	830	Area affected	acres (a)
Wood products	840	Quantity of wood replaced	board feet (bf)
Conservation tillage	851	Area affected	acres (a)
Other carbon sequestration projects/activities	899		
HALOGENATED SUBSTANCES			
General Halogenated Substances	900		

PROJECT TYPE	CODE	PROJECT SIZE	
		SIZE MEASURE	UNIT OF MEASURE (STANDARD ABBREVIATION*)
Reclamation: Recycling	911	Number of appliances (if applicable)	
Reclamation: Destruction	912	Number of appliances (if applicable)	
Substitution	920	Number of units (if applicable)	
Emission avoidance	930	Number of units	
Use of improved appliances	940	Number of appliances (if applicable)	
Other halogenated substances projects/activities	999		
OTHER EMISSION REDUCTION PROJECTS			
General projects	000		
Materials recycling/reuse	011	Mass of material recycled	short tons (st)
Waste/source reduction	012	Mass of waste reduced	short tons (st)
Coal ash reuse	013	Mass of coal ash reused	short tons (st)
Underground injection of carbon dioxide	014	Volume of gas injected	thousand standard cubic feet (Mscf)
Reduction of process emissions	020	Process production (omit if confidential)	
Research and development programs	081	Expenditures	dollars ($)
Education and training programs	082	Expenditures	dollars ($)
All other projects not included in the above categories	099		

*See Appendix E for a list of standard abbreviations to be used in completing Form EIA-1605EZ.

Appendix D. Codes for Voluntary Programs

Code	Program Name	Program Sponsor
AGS	AgSTAR	DOE, EPA, USDA
AHP	Affordable Homes Partnership	DOE
CAC	Compressed Air Challenge	DOE
CC	Climate Challenge	DOE
CCP	Cool Communities Program	DOE
CMOP	Coalbed Methane Outreach Program	EPA
CWP	Climate Wise Recognition Program	DOE, EPA
EADS	Energy Analysis and Diagnostic Centers	DOE
EEP	Energy Efficiency and Renewable Energy Information and Training Programs	DOE
EFP	Energy Fitness Program	DOE
ESB	Energy Star Building Program	DOE, EPA
ESC	Energy Star Computers Program	DOE, EPA
ESSB	Energy Star Small Business Program	DOE, EPA
ESP	Energy Star Programs	DOE, EPA
EST	Energy Star Transformers	DOE, EPA
FSP	Forest Stewardship Program	USDA
GLP	Green Lights Program	EPA
ICHP	Industrial Combined Heat and Power Initiative	DOE
LMOP	Landfill Methane Outreach Program	EPA
MCP	Motor Challenge Program	DOE
NGS	Natural Gas STAR	EPA
NIPP	$NICE^3$ Industrial Pollution Prevention Grants Program	DOE, EPA, USDA
OTH	Other Federal, state and local programs	–
PTI	Partnerships for Technology Introduction	DOE
RBA	Rebuild America	DOE
REC	Renewable Energy Commercialization	DOE
RFAP	Rural Forestry Assistance Program	USDA
RLMP	Ruminant Livestock Methane Program	EPA, USDA
SC	Steam Challenge	DOE
SFERP	Sulfur Hexafluoride (SF_6) Emissions Reduction Partnership for Electric Power Systems	EPA
USIJI	United States Initiative on Joint Implementation	DOE, EPA
VAIP	Voluntary Aluminum Industrial Partnership	EPA
WWP	Waste Wi$e Program	EPA

DOE = U.S. Department of Energy EPA = U.S. Environmental Protection Agency USDA = U.S. Department of Agriculture

Appendix E. Units of Measure

When specifying units on the form, select units from the following list and use the corresponding abbreviation. You may combine these units as needed, e.g., use MMBtu/hr for million British thermal units per hour.

UNIT OF MEASURE	ABBREVIATION
Weight	
pounds	lbs
short tons	st
thousand short tons	Kst
million short tons	MMst
kilograms	kg
metric tons	mt
thousand metric tons	Kmt
million metric tons	MMmt
Energy	
British thermal units	Btu
million British thermal units	MMBtu
joules	J
megajoules	MJ
watthours	Wh
kilowatthours	kWh
megawatthours	MWh
Power	
watts	W
kilowatts	kW
megawatts	MW
Length	
feet	ft
yards	yd
miles	mi
meters	m
kilometers	km

UNIT OF MEASURE	ABBREVIATION
Area	
square feet	sq ft
square yards	sq yd
acres	a
hectares	ha
square miles	sq mi
square meters	sq m
square kilometers	sq km
Volume	
gallons	gal
thousand gallons	Kgal
million gallons	MMgal
barrels	bbl
thousand barrels	Mbbl
million barrels	MMbbl
liters	l
kiloliters	kl
standard cubic feet	scf
thousand standard cubic feet	Mscf
million standard cubic feet	MMscf
cubic yards	cu yd
cubic meters	cm
board feet	bf
cord	cd
Time	
hours	hr
days	d
years	yr
Money	
dollars	$

Appendix F. Fuel and Energy Source Codes and Emission Coefficients

Fuel	Code	Emission Coefficients		
		Pounds CO_2 per Unit Volume or Mass		Pounds CO_2 per Million Btu
Petroleum Products				
Aviation Gasoline	AV	18.4 770.9	per gallon per barrel	152.7
Distillate Fuel (No. 1, No. 2, No. 4 Fuel Oil, and Diesel)	DF	22.4 940.1	per gallon per barrel	161.4
Jet Fuel	JF	21.1 900.4	per gallon per barrel	156.3
Kerosene	KS	21.5 904.6	per gallon per barrel	159.5
Liquified Petroleum Gases (LPG)	LG	12.8 537.8	per gallon per barrel	139.0
Motor Gasoline	MG	19.6 822.9	per gallon per barrel	156.425
Petroleum Coke	PC	32.4 1356.5 6768.7	per gallon per barrel per short ton	225.130
Residual Fuel (No. 5 and No. 6 Fuel Oil)	RF	26.0 1,093.4	per gallon per barrel	173.9
Natural Gas and Other Gaseous Fuels				
Methane	ME	116.4	per 1000 ft^3	115.3
Flare Gas	FG	133.8	per 1000 ft^3	120.7
Natural Gas (Pipeline)	NG	120.6	per 1000 ft^3	117.1
Propane	PR	12.7 532.1	per gallon per barrel	139.2
Electricity	EL	See Appendix G		
Coal	CL			
Anthracite	AC	3,852.2	per short ton	227.4
Bituminous	BC	4,931.3	per short ton	205.3
Subbituminous	SB	3,715.9	per short ton	212.7
Lignite	LC	2,791.6	per short ton	215.4
Renewable Sources				
Geothermal energy	GE	0		0

Fuel	Code	Emission Coefficients		
		Pounds CO_2 per Unit Volume or Mass		Pounds CO_2 per Million Btu
Wind	WN	0		0
Photovoltaic and Solar Thermal	PV	0		0
Hydropower	HY	0		0
Tires/ Tire-Derived Fuel	TF	6160	per short ton	189.5
Wood and Wood Waste	WW	3,814	per short ton[a]	221.9[a]
Municipal Solid Waste	MS	1,999	per short ton[a]	199.9[a]
Nuclear	NU	0		0
Other	ZZ	-		

[a] Includes emissions from combustion only. Fuel cycle emissions are likely to be less than the direct emissions because all or part of the fuel is renewable. These biofuels contain carbon that is part of the natural carbon balance and will not add to atmospheric concentrations of carbon dioxide.

OMB No. 1905-0194
Expires: 05/31/01
Burden: 4 hours

Appendix G. Adjusted Electricity Emission Factors by State

Region	State	CO_2 Emission Factors		
		lbs/kWh	short tons/MWh	metric tons/MWh
New England	Connecticut	0.715	0.358	0.324
	Maine	0.966	0.483	0.438
	Massachusetts	1.459	0.729	0.662
	New Hampshire	0.852	0.426	0.386
	Rhode Island	1.091	0.546	0.495
	Vermont	0.159	0.080	0.072
Mid Atlantic	New Jersey	0.774	0.387	0.351
	New York	1.036	0.518	0.470
	Pennsylvania	1.286	0.643	0.583
East-North Central	Illinois	0.866	0.433	0.393
	Indiana	2.171	1.086	0.985
	Michigan	1.576	0.788	0.715
	Ohio	1.807	0.904	0.820
	Wisconsin	1.343	0.671	0.609
West-North Central	Iowa	1.686	0.843	0.765
	Kansas	1.703	0.852	0.773
	Minnesota	1.627	0.814	0.738
	Missouri	1.783	0.891	0.809
	Nebraska	1.288	0.644	0.580
	North Dakota	2.303	1.151	1.045
	South Dakota	0.912	0.456	0.410
South Atlantic	Delaware	1.855	0.928	0.842
	District of Columbia	2.649	1.324	1.192
	Florida	1.294	0.647	0.587
	Georgia	1.220	0.610	0.553
	Maryland	1.356	0.678	0.615
	North Carolina	1.350	0.675	0.612
	South Carolina	0.688	0.344	0.312
	Virginia	1.107	0.554	0.502
	West Virginia	2.005	1.003	0.909
East-South Central	Alabama	1.369	0.684	0.621
	Kentucky	1.930	0.965	0.869
	Mississippi	1.075	0.537	0.487
	Tennessee	1.335	0.668	0.606
West-South Central	Arkansas	1.286	0.643	0.584
	Louisiana	1.388	0.694	0.629
	Oklahoma	1.672	0.836	0.758
	Texas	1.552	0.776	0.704

Region	State	CO_2 Emission Factors		
		lbs/kWh	short tons/MWh	metric tons/MWh
Mountain	Arizona	0.798	0.399	0.362
	Colorado	2.001	1.000	0.908
	Idaho	0.269	0.134	0.122
	Montana	1.553	0.777	0.704
	Nevada	1.875	0.937	0.850
	New Mexico	1.405	0.703	0.637
	Utah	1.990	0.995	0.903
	Wyoming	2.194	1.097	0.995
Pacific Contiguous	California	0.756	0.378	0.343
	Oregon	0.235	0.118	0.107
	Washington	0.306	0.153	0.139
Pacific	Alaska	0.031	0.016	0.014
Non-contiguous	Hawaii	1.514	0.757	0.687

Source: U. S. Department of Energy, *Sector-Specific Issues and Reporting Methodologies Supporting the General Guidelines for the Voluntary Reporting of Greenhouse Gases under Section 1605(b) of the Energy Policy Act of 1992* (DOE/PO-0028, October 1994), Volume I, Table C.1 "Adjusted Electricity Emissions Factors by State."